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(54) Title: MODULAR SYSTEM OF DIETARY SUPPLEMENT COMPOSITIONS

(57) **Abstract:** The invention pertains to a dietary supplement composition, comprising at least two compositions A and B which are to be taken at different points in time, wherein composition A consists essentially of water soluble vitamins and composition B consists essentially of fat soluble vitamins. Composition A is an energy-rich composition, comprised of water soluble vitamins, supplemented with further ingredients and minerals, which is taken in the morning and preferably immediately after breakfast. Composition B is a composition for recovery of the cells in the rest phase (i.e. during the night), comprised of fat soluble vitamins, supplemented with other ingredients and minerals, which is taken in the evening and preferably immediately after dinner. Composition A comprises as vitamins predominantly vitamin C, vitamin B-1, vitamin B-2, vitamin B-3, vitamin B-5, vitamin B-6, vitamin B-12, vitamin B-15, and vitamin H, and composition B comprises as vitamins predominantly vitamin A, provitamin A, vitamin C, vitamin D3, and vitamin K1.

### Dietary supplement composition

The present invention relates to a novel dietary supplement composition comprising vitamins, minerals and possible other health-stimulating substances, such as anti-oxidants. More in particular, the invention relates to a dietary supplement composition which is comprised of two or more different independent compositions which are to be taken at different points in time by the user in order to reach an optimum health-effect.

Vitamins and mineralen are essential building materials for the renewal of healthy cells and white blood corpuscles. They reject toxic substances, control the level of cholesterol, assist in the digestion and provide for optimal functioning of the skin, nerves, muscles and hormones, and strengthen the defence system.

Irregular eating habits, the decline of the quality of the environment and the day-to-day pressure of work contribute to the harm of the defence system. Since our current nutrition is no longer adequate, it is important to supplement the lack of vitamins and minerals with a dietary supplement composition in order to reach the necessary daily amounts which preferably are also the optimum amounts.

Anti-oxidants are important substances which offer protection to free radicals. They are produced within the body and their concentration is increased by pollution, sunlight, alcohol and smoke of cigarettes. Too many free radicals may damage the cells in the body and may thus cause various degeneration diseases in the long term.

Phyto nutrients are natural nutritive substances with active parts from fruit, vegetables, grains, herbs or soya. These nutrients provide optimum protection to free radicals and at the same time they strengthen the defence system to viruses and bacterial infections.

Research has revealed that the biorhythm of the human body is distinct in the uptake and removal of vitamins, minerals and anti-oxidants. This knowledge resulted in the development of a formula comprising the proper amounts for an optimum condition and a strong defence system in the body during the day and for rest and recuperation during the night.

According to the invention a dietary supplement composition is now provided which both in the matter of the dosage and composition comprises a very complete formula of multivitamins, multiminerals and anti-oxidants, which is very useful for the human health promotion.

The dietary supplement composition according to the invention is characterised in that it comprises at least two compositions A and B which are to be taken at different points in

time, wherein composition A consists essentially of water soluble vitamins and composition B consists essentially of fat soluble vitamins.

Composition A is an energy-rich composition, which is comprised of water soluble vitamins, preferably supplemented with one or more minerals and other usual health-stimulating substances. Composition B is a composition for recovery of the cellen in the rest phase (i.e. during the night), comprised of fat soluble vitamins, preferably supplemented with one or more minerals and other usual ingredients for this purpose.

Composition A is taken in the morning and preferably immediately after breakfast and composition B is taken in the evening, i.e. about 9-17 hours after composition A.  
10 Preferably, composition B is taken immediately after dinner.

Many varieties of dietary supplement compositions are known both from literature and the actual practice, among which dietary supplement compositions predominantly consisting of vitamins and minerals and dietary supplement compositions, which are comprised of separate modules which are to be taken at different points in time. For example, 15 U.S. Patents Nos. 5,948,443 and 5,976,568 disclose a total modular system of multivitamin-and mineral supplements composed of 7 modules for the promotion of public health and in particular the prevention and treatment of heart- and vascular diseases. The module formulations provide nutrients in suitable amounts to the morning and evening meals to obtain maximum absorption which is inter alia caused by administering a dose in the morning and a 20 dose in the evening.

However, none of the references describes or suggests a dietary supplement composition according to the invention where the composition provides a strict separation between Composition A with the water soluble vitamins in the morning (at or around breakfast) and Composition B with the fat soluble vitamins in the evening (at or around dinner). As far as 25 the inventor is aware, such strict separation is not made in the dietary supplement compositions which are known in actual practice. According to the aforementioned U.S. Patents a "module" is defined as a separate and distinct combination of vitamin-mineral and other health promoting compounds which are directed to specific target populations. In the present invention the same definition of "module" is used as the occasion arises.

30 According to the invention composition A comprises as vitamins predominantly vitamin C, vitamin B-1, vitamin B-2, vitamin B-3, vitamin B-5, vitamin B-6, vitamin B-12, vitamin B-15, and vitamin H, and composition B comprises as vitamins predominantly vitamin A, provitamin A, vitamin C, vitamin D3, and vitamin K1. All vitamins are brought in a suitable form for administration.

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Preferably, Composition A further comprises one or more of the minerals chromium, potassium, copper, magnesium and manganese, in a suitable form for administration. Composition A may advantageously further comprise one or more compounds selected from the group consisting of folic acid, p-aminobenzoic acid, choline, inositol, citrus bioflavonoids, pycnogenol, lipoic acid, coenzyme Q10, proanthocyanidine, dimethyl-aminoethanol and nordihydroguarese acid, in a suitable form for administration.

Preferably, Composition B further comprises one or more of the minerals borium, calcium, iodine, lithium, magnesium, molybdenum, rubidium, selenium, strontium, vanadium, iron and zinc, in a suitable form for administration. Composition B may further advantageously comprise taurin and/or tocotrienol, in a suitable form for administration.

The amounts of the various ingredients in the compositions A and B are not very critical and can be easily determined experimentally by a person skilled in the art, preferably taking into account factors such as the specific needs (or deficiencies) of individuals to whom the vitamin preparations according to the invention are intended, and the age and the weight of these persons.

Suitable amounts of the components for the compositions A and B and possible further compositions, forming part of the dietary supplement composition according to the present invention, are for an effective daily oral dose preferably within the ranges shown in Table 1 below:

water	Vitamin C (Calcium Ascorbate )	50 - 1,000	mg
water	Vitamin B-1(Thiamin)	0.7 - 100	mg
water	Vitamin B-2(Riboflavin)	0.8 - 100	mg
water	Vitamin B-3(Niacinamide\Niacine)	9 - 100	mg
water	Vitamin B-5(Calcium Pantothenate)	5 - 300	mg
water	Vitamin B-6(Pyridoxal 5-Fosphate)	0.7 - 150	mg
water	Vitamin B-12(Cyanocobalamine)	1 - 100	mcg
water	Vitamin B-15(Pangaam acid)	10 - 150	mg
water	Vitamin H (Biotine)	0.15 - 300	mcg
water	Folic acid	50 - 800	mcg
water	Para-aminobenzoic acid (PABA)	15 - 100	mg
water	Choline (Bitartrate)	15 - 150	mg
water	Inositol	10 - 100	mg
water	Citrus Bioflavonoids	12 - 200	mg
water	Pycnogenol	10 - 150	mg
	Lipoic acid	0 - 100	mg
	Coenzyme Q10	5 - 200	mg
	Procyanidine/Proanthocianidine (OPC)	20 - 100	mg
	DMAE (Dimethyl aminoethanol)	0 - 500	mg
	NDGA (Nordihydroguarese acid)	0 - 500	mg
	Chromium (GTF)	10 - 300	mcg
	Potassium	30 - 600	mg
	Copper	0 - 5	mg

	Magnesium	50 - 500	mg
	Manganese	1-12	mg
fat	Vitamin A (Palmitate)	250 - 15,000	ie
fat	Beta Carotene (Provitamin A)	3 - 40	mg
fat	Vitamin C (Ascorbyl palmitate)	50 - 1,000	mg
fat	Vitamin D3 (Cholecalciferol)	0.5 - 400	ie
fat	Vitamin E (D-Alpha-Tocoferol)	3 - 1500	ie
fat	Vitamin F (Unsaturated fatty acids)	0 - 150	mg
fat	Vitamin K1 (Phytonadione)	0 - 2	mg
	Taurine	10 - 750	mg
	Tocotrienol	5 - 150	mg
	Borium	0 - 10	mg
	Calcium	80 - 1,500	mg
	Iodine	15 - 500	mcg
	Lithium	0 - 1,000	mcg
	Magnesium	50 - 500	mg
	Molybdeen	30 - 500	mcg
	Rubidinium	0 - 600	mcg
	Selenium	20 - 1,000	mcg
	Strontium	0 - 10	mg
	Vanadium	0 - 500	mcg
	Iron	1 - 30	mg
	Zinc	5 - 30	mg

The dietary supplement compositions according to the invention may be adapted as far as the composition is concerned to specific target groups (modules). Such modules are for example described in U.S. Patent No. 5,976,568, the content of which is herein incorporated by reference.

Very suitable, typical basis formulations of a dietary supplement composition according to the invention are for example illustrated in Examples 1 and 2. Other more specific modules are also illustrated in the Examples.

The dietary supplement compositions according to the invention may also be advantageously administered to animals, in particular mammals and especially to pets, such as cats and dogs. The amounts of the compositions A and B mentioned above usually deviate somewhat from the compositions which are taken by humans, but they can be easily optimized by persons skilled in the art based on the present disclosure and their professional skill and knowledge.

The dietary supplement compositions according to the present invention may be prepared in a known manner for the skilled person. The preparations, i.e. Compositions A and B, respectively, may be administered in various pharmaceutical forms which are known per se, the oral administration being preferred. The preparations may be administered both in solid and liquid form, preferably in unit dose form, which forms and dosages are fully known to

persons skilled in the art. Suitable solid forms are inter alia capsules, tablets, powders, pastilles and dragees; geschikte vloeibare vormen are for example aqueous solutions of the compositions A and B, respectively, in powder form or sirups.

- The present dietary supplement compositions may be advantageously applied for
- 5 a plurality of indications, such as, for example, the improvement of the total health and condition of human or animal, to early ageing, improvement of the skin, hair and nails, improvement of the stamina, to smoking and/or use of alcohol, to physical and mental stress, for performing well, optimizing the blood quality, to "ups and downs", to periods of fatigue, to absent-mindedness, stimulating muscle-formation, supplementing and formation of building
- 10 materials, lowering and control of the level of cholesterol, stimulating the healing of sports and other injuries, excessive exposure to sunshine, optimizing the physical energy, and control of body weight.

De invention is illustrated below by the following Examples which, however, are not to be construed as restricting the invention in any respect.

15

#### Example 1

A basis dietary supplement composition according to the invention was prepared using the following two compositions:

20 Composition A

A capsule contains the following ingredients:

Vitamin C (calcium ascorbate)	300	mg
Vitamin B-1 (Thiamine)	25	mg
Vitamin B-2 (Riboflavine)	25	mg
25 Vitamin B-3 (Niacinamide/Niacine)	50	mg
Vitamin B-5 (Calcium Pantothenate)	50	mg
Vitamin B-6 (Pyridoxal 5-Phosphate)	25	mg
Vitamin B-12 (Cyanocobaltamine)	50	mcg
Vitamin B-15 (Pangamic acid)	25	mg
30 Vitamin H (Biotin)	100	mcg
Folic acid	400	mcg
Para-aminobenzoic acid (PABA)	50	mg
Choline (Bitartrate)	50	mg
Inositol	50	mg

Citrus Bioflavonoids	75	mg
Pycnogenol	20	mg
Lipoic acid	5	mg
Coenzyme Q10	30	mg
5 Proanthocyanidine (Extract of grapestones)	10	mg
DMAE (Dimethyl aminoethanol)	50	mg
NDGA (Nordihydroguareseacid)	50	mg
Chromium (GTF)	100	mcg
Potassium (Amino Chelate)	100	mg
10 Copper (Gluconate)	2	mg
Magnesium (Amino Chelate)	150	mg
Manganese (Amino Chelate)	5	mg

Composition B

15 A capsule contains the following ingredients:

Vitamin A (Palmitate)	2.666	ie
β-Carotene (Provitamin A)	15	mg
Vitamin D3 (Cholecalciferol)	200	ie
Vitamin E (D-α-Tocoferol)	200	ie
20 Vitamin K1 (Phytonadione)	1	mg
Vitamin C (Ascorbyl palmitate)	250	mg
Taurine	250	mg
Tocotrienol	20	mg
Borium (Citrate)	1	mg
25 Calcium (Amino Chelate)	250	mg
Iodine (Kelp)	100	mcg
Lithium (Citrate)	500	mcg
Magnesium (Amino Chelate)	150	mcg
Molybdenum (Molybdate)	200	mcg
30 Rubidium (Amino Chelate)	500	mcg
Selenium (L-selenomethionine)	200	mcg
Strontium (Citrate)	1	mg
Vanadium (Ammonium vanadate)	500	mcg
Iron (Fumarate)	10	mg

Zinc (Citrate)	15 mg
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Composition A is a energy-rich composition containing water soluble vitamins supplemented with other ingredients and minerals, which are taken in the morning and 5 preferably immediately after breakfast. Composition B is a composition for recuperation of the cells in the rest phase (i.e. during the night), containing fat soluble vitamins, supplemented with other ingredients and mineralen, which are taken in the evening and preferably immediately after dinner.

10

#### Examples 2 to 7

These Examples illustrate in the following Table some specific modules of dietary supplement compositions according to the present invention, always consisting of an energy rich Composition or Complex A containing water soluble vitamins and other ingredients, and a Composition or Complex B for the recuperation of the cells in the rest phase, containing fat 15 soluble vitamins. Composition 1 is preferably taken in the morning, for example at breakfast, whereas composition B is preferably taken 9-17 hours later, and more preferably immediately after dinner.

Example 2 illustrates a basis formulation, as does Example 1, whereas Examples 3 to 6 illustrate a module for men, women, children from 1 year of age, adults in the age of 20 50+, and a module for sportsmen, respectively.

Example 2

Basis formulation	Complex A	AM	Complex B	PM
water	Vitamin C (Calcium Ascorbate)	300 mg	Vitamin A (Palmitate)	2.666 ie
water	Vitamin B-1 (Thiamine)	25 mg	Beta Carotene (Provitamin A)	15 mg
water	Vitamin B-2 (Riboflavin)	25 mg	Vitamin C (Ascorbyl Palmitate)	250 mg
water	Vitamin B-3 (Niacinamide\Niacin)	50 mg	Vitamin D3 (Cholecalciferol)	200 ie
water	Vitamin B-5 (Pantothenic Acid)	50 mg	Vitamin E (D-Alpha-Tocopherol)	200 ie
water	Vitamin B-6 (Pyridoxine-\\$-Phos.)	25 mg	Vitamin F ( Unsaturated Fatty Acids)	10 mg
water	Vitamin B-12 (Cyano Cobalamin)	25 mcg	Vitamin K1 (Phytadione)	1 mg
water	Vitamin B-15 (Pangamic Acid)	25 mg	Taurine	25 mg
water	Vitamin H (Biotin)	150 mcg	Toocrienol	20 mg
water	Folic Acid	400 mcg	Boron (Citrate)	1 mg
water	Para-Aminobenzoic Acid (PABA)	50 mg	Calcium (Amino Acid Chelate)	250 mg
water	Choline (Bitartrate)	50 mg	Iodine (Kelp)	100 mcg
water	Inositol	50 mg	Lithium (Citrate)	500 mcg
water	Citrus Bioflavonoids	75 mg	Magnesium (Amino Acid Chelate)	150 mg
water	Pycnogenol	20 mg	Molybdenum (Molybdate)	200 mcg
water	Lipoic Acid	5 mg	Rubidium (Amino Acid Chelate)	500 mcg
water	Coenzyme Q10	30 mg	Selenium (L-Selenomethionine)	200 mcg
water	Procyanidin/Proanthocyanidine (OPC)	50 mg	Strontium (Citrate)	1 mg
water	DMAE (Dimethyl Aminoethanol)	50 mg	Vanadium (Ammonium Vanadate)	500 mcg
water	NDGA (Nordihydroguaiaretic Acid)	50 mg	Iron (Fumarate)	10 mg
water	Chromium (GTF)	100 mcg	Zinc (Citrate)	15 mg
	Potassium (Amino Acid Chelate)	100 mg		
	Copper (Gluconate)	2 mg		
	Magnesium (Amino Acid Chelate)	150 mg		
	Manganese (Amino Acid Chelate)	5 mg		

Example 3

Men's formulation	Complex A	AM		PM	
		Complex B			
water	Vitamin C (Calcium Ascorbate)	250	mg	5.000	ie
water	Vitamin B-1 (Thiamine)	25	mg	10	mg
water	Vitamin B-2 (Riboflavin)	25	mg	250	mg
water	Vitamin B-3 (Niacinamide)Niacin)	50	mg	200	ie
water	Vitamin B-5 (Pantothenic Acid)	50	mg	200	ie
water	Vitamin B-6 (Pyridoxine-5-Phos.)	25	mg	Vitamin F (Unsaturated Fatty Acids	
water	Vitamin B-12 (Cobalamin)	50	mcg	Vitamin K1 (Phytanadione)	
water	Vitamin H (Biotin)	100	mcg	Taurine	30
water	Folic Acid	300	mcg	Tocotrienol	20
water	Para-Aminobenzoic Acid (PABA)	50	mg	Boron (Citrate)	1
water	Choline (Bitartrate)	50	mg	Calcium (Amino Acid Chelate)	50
water	Inositol	50	mg	Iodine (Kelp)	100
water	Citrus Bioflavonoids	50	mg	Lithium (Citrate)	500
water	Pycnogenol	20	mg	Magnesium (Amino Acid Chelate)	150
water	Lipoic Acid	5	mg	Molybdenum (Molybdate)	200
water	Coenzyme Q10	40	mg	Rubidium (Amino Acid Chelate)	500
	Procyandidine/Proanthocyanidine (OPC)			Selenium (L-Selenomethionine)	200
	DMAE (Dimethylaminoethanol)			Strontium (Citrate)	1
	NDGA (Nordihydroguaiaretic Acid)			Vanadum (Ammonium Vanadate)	500 mcg
	Chromium (GTF)			Iron (Fumarate)	10 mg
	Potassium (Amino Acid Chelate)			Zinc (Citrate)	15 mg
	Copper (Gluconate)				
	Magnesium (Amino Acid Chelate)				
	Manganese (Amino Acid Chelate)				

#### Example 4

Women's formulation	Complex A	AM	Complex B	PM
water	Vitamin C (Calcium Ascorbate)	200 mg	fat	4,000 ie
water	Vitamin B-1 (Thiamine)	25 mg	fat	10 mg
water	Vitamin B-2 (Riboflavin)	25 mg	fat	200 mg
water	Vitamin B-3 (Niacinamide/Niacin)	25 mg	fat	400 ie
water	Vitamin B-5 (Pantothenic Acid)	50 mg	fat	200 ie
water	Vitamin B-6 (Pyridoxine-5-Phos.)	25 mg	fat	
water	Vitamin B-12 (Cobalamin)	25 mcg	fat	
water	Vitamin H (Biotin)	100 mcg	Taurine	50 mg
water	Folic Acid	500 mcg	Tocotrienol	20 mg
water	Para-Aminobenzoic Acid (PABA)	50 mg	Boron (Citrate)	1 mg
water	Choline (Bitartrate)	40 mg	Calcium (Amino Acid Chelate)	500 mg
water	Inositol	50 mg	Iodine (Kelp)	125 mcg
water	Citrus Bioflavonoids	50 mg	Lithium (Citrate)	500 mcg
water	Pycnogenol	20 mg	Magnesium (Amino Acid Chelate)	200 mg
water	Lipoic Acid		Molybdenum (Molybdate)	300 mcg
water	Coenzyme Q10	30 mg	Rubidium (Amino Acid Chelate)	500 mcg
water	Procyanidine/Proanthocyanidine (OPC)		Selenium (L-Selenomethionine)	200 mcg
water	DMAE (Dimethyl aminoethanol)		Strontium (Citrate)	1 mg
water	NDGA (Nordihydroguaiaretic Acid)		Vanadium (Ammonium vanadate)	300 mcg
water	Chromium (GTF)	100 mcg	Iron (Fumarate)	15 mg
water	Potassium (Amino Acid Chelate)	100 mg	Zinc (Citrate)	20 mg
water	Copper (Gluconate)	2 mg		
water	Magnesium (Amino Acid Chelate)	200 mg		
water	Manganese (Amino Acid Chelate)	5 mg		

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Example 5

Children, s over 1 year formulation	Complex A		Complex B		PM
	AM	PM	AM	PM	
water	Vitamin C (Calcium Ascorbate)	75 mg	fat	Vitamin A (Palmitate)	1.250 ie
water	Vitamin B-1 (Thiamine)	5 mg	fat	Beta Carotene (Provitamin A)	5 mg
water	Vitamin B-2 (Riboflavin)	5 mg	fat	Vitamin C (Ascorbyl Palmitate)	75 mg
water	Vitamin B-3 (Niacinamide) (Niacin)	10 mg	fat	Vitamin D3 (Cholecalciferol)	200 ie
water	Vitamin B-5 (Calcium Pantothenate)	10 mg	fat	Vitamin E (D-A-Alpha-Tocopherol)	18 ie
water	Vitamin B-6 (Pyridoxine-5-Phosphate)	5 mg	fat	Vitamin F (Unsaturated Fatty Acids)	
water	Vitamin B-12 (Cyanocobalamin)	5 mcg	fat	Vitamin K1 (Phytanadione)	1 mg
water	Vitamin H (Biotin)	100 mcg	Taurine		
water	Folic Acid	200 mcg	Tocotrienol		
water	Para-Aminobenzoic Acid (PABA)	1 mg	Boron (Citrate)	300 mcg	
water	Choline (Bitartrate)	10 mg	Calcium (Amino Acid Chelate)	50 mg	
water	Inositol	10 mg	Iodine (Kelp)	50 mcg	
water	Citrus Bioflavonoids	10 mg	Lithium (Citrate)		
water	Pycnogenol		Magnesium (Amino Acid Chelate)	10 mg	
water	Lipoic Acid		Molybdenum (Molybdate)	20 mcg	
water	Coenzyme Q10		Rubidium (Amino Acid Chelate)		
water	Procyanidine/Proanthocyanidine (OPC)		Selenium (L-Selenomethionine)	50 mcg	
water	DMAE (Dimethyl Aminoethanol)		Strontium (Citrate)	0.5 mg	
water	NDGA (Nordihydroguaiaretic Acid)		Vanadium (Ammonium Vanadate)	20 mcg	
water	Chromium (GTF)	20 mcg	Iron (Fumarate)	2.5 mg	
water	Potassium (Amino Acid Chelate)	1 mg	Zinc (Citrate)	4 mg	
water	Copper (Gluconate)	0.5 mg			
water	Magnesium (Amino Acid Chelate)	10 mg			
water	Manganese (Amino Acid Chelate)	1 mg			

	<u>Example 6</u>		PM
	AM	Complex B	
Over 50 years formulation			
Complex A			
water	Vitamin C (Calcium Ascorbate)	300 mg	4.000 ie
water	Vitamin B-1 (Thiamine)	25 mg	15 mg
water	Vitamin B-2 (Riboflavin)	25 mg	200 mg
water	Vitamin B-3 (Niacinamide\Niacin)	70 mg	200 ie
water	Vitamin B-5 (Pantothenic Acid)	100 mg	400 ie
water	Vitamin B-6 (Pyridoxine-5-Phos.)	25 mg	15 mg
water	Vitamin B-12 (Cobalamin)	50 mcg	1 mg
water	Vitamin B-15 (Calcium Pangamate)	30 mg	30 mg
water	Vitamin H (Biotin)	100 mcg	20 mg
water	Folic Acid	400 mcg	1 mg
water	Para-Aminobenzoic Acid (PABA)	50 mg	500 mg
water	Choline (Bitartrate)	50 mg	150 mcg
water	Inositol	50 mg	500 mcg
water	Citrus Bioflavonoids	50 mg	150 mg
water	Pycnogenol	20 mg	200 mcg
water	Lipoic Acid	5 mg	500 mcg
water	Coenzyme Q10	30 mg	200 mcg
water	Procyanidine/Proanthocyanidine (OPC)	40 mg	1 mg
water	DMAE (Dimethylaminoethanol)	50 mg	500 mcg
water	NDGA (Nordihydroguaretic Acid)	50 mg	15 mg
water	Chromium (GTF)	100 mcg	15 mg
water	Potassium (Amino Acid Chelate)	150 mg	
water	Copper (Amino Acid Chelate)	2 mg	
water	Magnesium (Amino Acid Chelate)	150 mg	
water	Manganese (Amino Acid Chelate)	7 mg	
water	Soyagem complex	300 mg	
water	Phosphorus (Calcium Phosphate)	100 mg	
Complex B			
water	Vitamin A (Palmitate)	fat	
water	Beta Carotene (Provitamin A)	fat	
water	Vitamin C (Ascorbyl Palmitate)	fat	
water	Vitamin D3 (Cholecalciferol)	fat	
water	Vitamin E (D Alpha-Tocoferol)	fat	
water	Vitamin F (Unsaturated Fatty Acids)	fat	
water	Vitamin K1 (Phytomenadione)	fat	
water	Taurine	30 mg	
water	Tocotrienol	20 mg	
water	Boron (Citrate)	1 mg	
water	Calcium (Amino Acid Chelate)	500 mg	
water	Iodine (Kelp)	150 mg	
water	Lithium (Citrate)	500 mcg	
water	Magnesium (Amino Acid Chelate)	150 mg	
water	Molybdenum (Molybdate)	200 mcg	
water	Rubidium (Amino Chelate)	500 mcg	
water	Selenium (L-Selenomethionine)	200 mcg	
water	Strontium (Citrate)	1 mg	
water	Vanadium (Ammoniumvanadate)	500 mcg	
water	Iron (Fumarate)	15 mg	
water	Zinc (Citrate)	15 mg	

Example 7

Sports formulation	Complex A	AM	PM
	Complex B		
water	Vitamin C (Calcium Ascorbate)	300 mg	fat
water	Vitamin B-1 (Thiamine)	40 mg	fat
water	Vitamin B-2 (Riboflavin)	40 mg	fat
water	Vitamin B-3 (Niacinamide)\Niacin)	80 mg	fat
water	Vitamin B-5 (Calcium Pantothenate)	80 mg	fat
water	Vitamin B-6 (Pyridoxine-5-Phos.)	40 mg	fat
water	Vitamin B-12 (Cyano Cobaltmine)	80 mcg	fat
water	Vitamin B-15 (Calcium Pangamate)	40 mg	fat
water	Vitamin H (Biotin)	200 mcg	Tocotrienol
water	Folic Acid	400 mcg	Boron (Citrate)
water	Para-Aminobenzoic Acid (PABA)	50 mg	Calcium (Amino Acid Chelate)
water	Choline (Bitartrate)	100 mg	Iodine (Kelp)
water	Inositol	100 mg	Lithium (Citrate)
water	Citrus Bioflavonoids	100 mg	Magnesium (Amino Acid Chelate)
water	Pycnogenol	40 mg	Molybdenum (Molybdate)
water	Lipoic Acid	10 mg	Rubidium (Amino Acid Chelate)
water	Coenzyme Q10	20 mg	Selenium (L-Selenomethionine)
	Procyanidine/Proanthocyanidine (OPC)	75 mg	Strontrium (Citrate)
	DMAE (Dimethylaminoethanol)		Vanadium (Ammonium Vanadate)
	NDGA (Nordihydroguaretic Acid)		Iron (Fumarate)
	Chromium (GTF)	100 mcg	Zinc (Citrate)
	Potassium (Amino Acid Chelate)	150 mg	Coenzyme Q10
	Copper (Gluconate)	2 mg	L-Glutamine
	Magnesium (Amino Acid Chelate)	150 mg	L-Cysteine
	Manganese (Amino Acid Chelate)	10 mg	L-Leucine
			L-Isoleucine
			L-Valine
			L-Carnitine
			L-Methionine

It will be understood, that the vitamin preparations according to the invention may be varied in several ways by adding or deleting certain ingredients to or from the compositions A and B, or by modifying amounts as illustrated in the Examples. All such variants are meant to be encompassed by the scope of the invention, which is determined by the claims that follow.

Claims

1. Dietary supplement composition, said dietary supplement composition comprising at least two compositions A and B which are to be taken at different points in time,  
5 wherein composition A consists essentially of water soluble vitamins and composition B consists essentially of fat soluble vitamins.
2. Dietary supplement composition according to claim 1, wherein composition A is taken in the morning and composition B is taken 9-17 hours after composition A.  
10
3. Dietary supplement composition according to claim 1 or 2, wherein composition A comprises as vitamins predominantly vitamin C, vitamin B-1, vitamin B-2, vitamin B-3, vitamin B-5, vitamin B-6, vitamin B-12, vitamin B-15, and vitamin H, and composition B comprises as vitamins predominantly vitamin A, provitamin A, vitamin C, vitamin D3, and  
15 vitamin K1.
4. Dietary supplement composition according to any one of claims 1 to 3, wherein composition A further comprises one or more of the minerals chromium, potassium, copper, magnesium, and manganese, in a suitable form for administration.  
20
5. Dietary supplement composition according to any one of claims 1 to 3, wherein composition B further comprises one or more of the minerals borium, calcium, iodine, lithium, magnesium, molybdenum, rubidium, selenium, strontium, vanadium, iron, and zinc, in a suitable form for administration.  
25
6. Dietary supplement composition according to any one of claims 1 to 4, wherein composition A further comprises one or more compounds selected from the group consisting of folic acid, p-aminobenzoic acid, choline, inositol, citrus bioflavonoids, pycnogenol, lipoic acid, coenzyme Q10, proanthocyanidin, dimethyl aminoethanol, and nordihydroguareseacid, in  
30 a suitable form for administration.
7. Dietary supplement composition according to any one of claims 1 to 3 and 5, wherein composition B further comprises taurin and/or tocotrienol, in a suitable form for administration.

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8. Dietary supplement composition according to any one of the preceding claims, wherein this preparation is comprised of compositions A and B, essentially as described in Examples 1 to 7, respectively.

5           9. Composition A of the dietary supplement composition as defined in any one of the preceding claims.

10. Composition B of the dietary supplement composition as defined in any one of the preceding claims.

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**WO 02/076436 A3**

(54) Title: MODULAR SYSTEM OF DIETARY SUPPLEMENT COMPOSITIONS COMPRISING VITAMINS

(57) **Abstract:** The invention pertains to a dietary supplement composition, comprising at least two compositions A and B which are to be taken at different points in time, wherein composition A consists essentially of water soluble vitamins and composition B consists essentially of fat soluble vitamins. Composition A is an energy-rich composition, comprised of water soluble vitamins, supplemented with further ingredients and minerals, which is taken in the morning and preferably immediately after breakfast. Composition B is a composition for recovery of the cells in the rest phase (i.e. during the night), comprised of fat soluble vitamins, supplemented with other ingredients and minerals, which is taken in the evening and preferably immediately after dinner. Composition A comprises as vitamins predominantly vitamin C, vitamin B-1, vitamin B-2, vitamin B-3, vitamin B-5, vitamin B-6, vitamin B-12, vitamin B-15, and vitamin H, and composition B comprises as vitamins predominantly vitamin A, provitamin A, vitamin C, vitamin D3, and vitamin K1.

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International Application No

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## A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, FSTA, BIOSIS

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X	US 5 948 443 A (CHRISTAKIS GEORGE ET AL) 7 September 1999 (1999-09-07) column 4, line 49-56; tables II,III column 7, line 39 -column 8, line 8 column 11, line 47-59 --- -/-	1-10

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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